

Abstract

The Versatile Aerosol Concentration Enrichment System (VACES) was developed by Professor Costas Sioutas at the University of Southern California. It is used by numerous toxicologists for studies of the health effects of concentrated ambient particles in laboratory animals. Questions have been raised by these toxicologists as to the reliability of VACES and possible artifacts introduced by it. Part I of this study explored this reliability and a number of potential artifacts, finding that the artifacts were few and minor, and that reliability was a problem that could be solved by some redesign of the VACES. Part II of this study performed some of the redesign alleviating many but not all of the observed artifacts.